TABLE OF CONTENTS — January–December 1989 • Volume 98

JANUARY

PART I

Channel-Compatible 6-MHz HDTV Distribution Systems ..... W. F. SCHREIBER, A. B. LIPPMAN, A. N. NETRAVALI, E. H. ADELSON, and D. H. STAELIN 5
Single-Channel Backward-Compatible EDTV Systems ..... A. B. LIPPMAN, A. N. NETRAVALI, E. H. ADELSON, W. R. NEUMAN, and W. F. SCHREIBER 14
Applications of the LaserVision Standard Videodisc in the Broadcasting Industry ..... DONALD HAYES 20
Video Recording Formats in Transition ..... KOICHI SADASHIGE 25
The President's Message ..... MAURICE L. FRENCH 4
23rd Annual SMPTE Television Conference, San Francisco 32

PART II — SPECIAL SUPPLEMENT

The 130th SMPTE Technical Conference and Equipment Exhibit 58

FEBRUARY

Acoustical Design for the Technical Building at Skywalker Ranch, Part 1: Sound Isolation and Room Acoustics ..... DAVID R. SCHWIND 100
Acoustical Design for the Technical Building at Skywalker Ranch, Part 2: Mechanical and Electrical Acoustic Noise Control ..... THOMAS A. SCHINDLER 106
Subjective Image Quality as a Function of Viewing Distance, Resolution, and Picture Size ..... JOYCE H. D. M. WESTERINK and JACQUES A. J. ROUFS 113
Theater Television: A History ..... DOUGLAS GOMERY 120
Direct Introduction of Time Code on Film ..... MICHEL OUDIN 123
Margin Testing of Digital Videotape Recorders ..... RICHARD D. PETIT 128
1987 Financial Reports 132

MARCH

Fault Diagnosis in the Digital Studio ..... DAVID J. BRADSHAW 164
The Application of High-Coercivity Cobalt Iron Oxide Tape for Digital Video Recording ..... K. ISESAKA, Y. FUJIMAKI, T. NAKAMURA, S. TAKAHASHI, K. KOBYASHI, and S. LEADER 168
3XNTSC — A "Leapfrog" Production Standard for HDTV ..... WAYNE E. BRETL 173
Chasing Rainbows: A Technical Overview ..... JOHN GALT and CHARLES PANTUSO 179
Packaging Innovations for Motion-Picture Films ..... ANN P. GRIFFEN 184
History of the Motion Picture ..... C. FRANCIS JENKINS 188
131st SMPTE Technical Conference and Equipment Exhibit, October 21–25, 1989, Los Angeles .. 195

APRIL

The 1988 Progress Report — Foreword ..... BLAINE BAKER 236
Engineering Report ..... STANLEY N. BARON 237
Motion Pictures ..... EDWARD J. BURNS 241
Television ..... FRANK J. HANEY 249
Educational ..... IRWIN W. YOUNG 301
131st SMPTE Technical Conference and Equipment Exhibit 303
23rd Annual SMPTE Television Conference, February 3 and 4, 1989, San Francisco 304

PART II

SMPTE Directory for Members 1–224

MAY

Experience with an Experimental Digital Component Video Production Facility ..... CHRIS J. DALTON and NORMAN W. GREEN 348
DPCM Bit-Rate Reduction for Component TV Signals at ENG Levels ..... JEAN AUBRY and YVES BUHLER 353
The Fully-Computerized Studio ..... R. S. R. SALTARELLI 360
Television Signal Transmission: Another Technology in Transition ..... C. ROBERT PAULSON 366
Evaluation of TV System Colorimetric Performance ..... BJARNE HISDAL 371
Real-Time Multilevel Digital Compositing: Quality Issues ..... PETER D. SYMES 376
Computer-Aided Design in Facilities and System Integration ..... ED WEBSTER and RON JONES 378
The National Film Board of Canada Celebrates 50th Anniversary 385
131st SMPTE Technical Conference and Equipment Exhibit 388

JUNE

Advanced High-Definition 50 to 60-Hz Standards Conversion ..... P. ROBERT, M. LAMNABHI, and J. J. LHUILLIER 420
A Distribution Switcher for HDTV ..... DAVID L. BYTHEWAY 425
Toward a World Studio Standard for High-Definition Television ..... DOMINIQUE NASSE and JEAN CHATEL 434
HD-PRO™: A New Global High-Definition Video Production Format ..... RICHARD J. IREDALE 439
Ten-Bit Processing in an 8-Bit Environment ..... PETER D. SYMES 444
Dynamic Rounding in Digital Video Processing: An Update ..... D. PETER OWEN 447
Telecine-Compatible Prints ..... DOMINIC J. CASE 451
SMPTE Chicago Section Holds 13th Annual All-Day Meeting 455
The 131st SMPTE Technical Conference and Equipment Exhibit 458

JULY

Advanced Compatible Television: A Progress Report ..... MICHAEL A. ISNARDI, CHARLES B. DIETERICH, and TERRENCE R. SMITH 484
Reliable EDTV/HDTV Transmission in Low-Quality Analog Channels ..... WILLIAM F. SCHREIBER and ANDREW B. LIPPMAN 496
A Modular Digital Video Coding Architecture for Present and Advanced TV Systems ..... SHAKER SABRI, DENIS LEMAY, and ERIC DUBOIS 504
Real-Time Digital Compositing in Anti-Aliased Text and Graphics Generation ..... DIMITRI CHERNYSHOV, GARN MORREL, and GINNY FAISON 512
Recording at High Volumetric Packing Densities ..... IRVING WOLF and THOMAS NEUMAN 515
Friction — Its Influence in Rotary Magnetic Tape Recorders ..... HEINRICH L. ZAHN 520
The 15th Meeting of IEC TC 60 — Recording, Subcommittees SC 60A — Audio Recording, and SC 60B — Video Recording ..... FREDERICK M. REMLEY 525
The 131st SMPTE Technical Conference and Equipment Exhibit 527
SMPTE Participates in NAB Convention 528

AUGUST

A Comparison of HDTV and Film — Overall Light Transfer Characteristics ..... JAMES GASPAR, HENRY MAHLER, and GEORGE GABRITSOS 556
The Equalization of Channel Noise Visibility in Television ..... PAUL SCORER 563
Mechanical Considerations in the Design of a Composite Digital VTR ..... N. KAKU, S. OZAKI, S. YOKOO, T. OZAWA, Y. NIGUCHI, H. ONO, K. OGIRO, and H. YOKOTA 568
The Brain™: A Multi-Axis, Location/Studio Camera/Subject, Robotic Motion-Control System ..... MICHAEL S. AZERAD, JOHN PLEY, JOSEPH DABBY, and ED ZWANEVELD 575
Adaptive Prediction for High-Quality Television Transmission Coding Based on LMS Algorithm ..... MICHAEL J. KNEE 580
Audio Program Metering in the 1980s: The Work of the IEEE Audio Measurements Subcommittee ..... RANDALL HOFFNER 590
Bibliography: Psychophysics of Image Evaluation ..... SMPTE Working Group on High Definition Electronic Production, FREDERICK J. KOLB, JR., Editor 594
24th Annual SMPTE Television Conference, January 26–27, 1990, Orlando, Fla. 599
1989 Sections and Engineering Training Seminar ..... LYNETTE ROBINSON and SI BECKER 600
SMPTE Ottawa, Montreal/Quebec, Rochester, and Toronto Sections Mini-Conference 602
131st SMPTE Technical Conference and Equipment Exhibit 606

SEPTEMBER

High Picture Quality Technologies for an S-VHS Portable VCR ..... M. OKU, I. AIZAWA, N. AZUMA, S. OKADA, K. HIROSE, and M. OZAWA 636
DCT-Based Television Codec for DS3 Digital Transmission ..... SILVIO CUCCHI and FRANCESCO MOLO 640
Standardization of Design Parameters for CCD Camera Lenses ..... KAZUNORI OHNISHI 647
Transmission of HDTV and Audio Signals over One Single-Mode Fiber ..... P. S. NATARAJAN, P. S. VENKATESAN, M. D. AUSTIN, J. OROST, and C. G. FORBES 651
Propagation Phenomena and Terrestrial Interference in Satellite Television Transmission ..... REED M. BURKHART 658
1988 Financial Reports 664
24th Annual SMPTE Television Conference 667
Special Preview of 131st SMPTE Technical Conference and Equipment Exhibit 668
Italian Section Holds Inaugural Meeting 688

OCTOBER

Multigeneration Performance of a Digital Composite VTR ..... FRASER MORRISON 732
HDTV Digital VTR ... LAURENCE THORPE, TADAAKI YOSHINAKA, and KAZUNOBU TSUJIKAWA 738
Spectrum-Compatible High-Definition Television Transmission System ..... WAYNE BRETL, RICHARD CITTA, RONALD LEE, and PIETER FOCKENS 748
The Application of Electronic Ballasting with Medium Arc Metal Halide Lamps ..... F. STEPHEN HENRY 754
Implementation of a Programmable System for Real-Time Digital Video Processing ..... MICHEL FORTIER and ERIC DUBOIS 760
The Arriflex Adjustable Contrast Filter: The ARRI VariCon ..... STANISLAW LOTH and HOWARD P. JONES 765
The Arriflex Contrast Meter: A New Nonsubjective Method of Measuring Contrast on the Set ... STANISLAW LOTH and HOWARD P. JONES 771
SMPTE Participates in Montreux and BKSTS 776
131st SMPTE Technical Conference and Exhibit 778
24th Annual SMPTE Television Conference 782

NOVEMBER

Signal Processing for Compatible HDTV ..... WILLIAM E. GLENN and KAREN G. GLENN 812
A Progress Report on Improved NTSC ..... YVES C. FAROUDJA and JOSEPH ROIZEN 817
Reducing Financial Aliasing in HDTV Production ..... CHARLES A. PANTUSO 823
Fujicolor Negative Films — F-Series ... KOZO NOGUCHI, YUKIHIDE URATA, and KOICHI MURAI 830
Workstation Development: A Plan for the Future at NBC ..... RALPH K. STRADER 835
Naturalistic Camera Moves in Image Compositing ..... RICHARD PATTERSON 840
24th Annual SMPTE Television Conference 843

DECEMBER

Some European Perspectives on HDTV ..... G. J. TONGE and J. R. FORREST 868
A Compatible High-Definition Television System Using the Noise-Margin Method of Hiding Enhancement Information ..... W. F. SCHREIBER, E. H. ADELSON, A. B. LIPPMAN, GONG RONGSHU, P. MONTA, A. POPAT, H. SALLIC, P. SHEN, A. TOM, K. ZANGI, and A. N. NETRAVALI 873
Monitoring Video Pictures in Different Formats and Standards ..... JOOST VERBRUGGE 880
Audio Performance of Professional VTRs ..... CHARLES P. REPKA 884
Adjacent Satellite and Ground Station Interference .. GEORGE HRYCENKO and STEPHEN DULAC 890
HMI Lighting for High-Speed Photographic Applications ..... PAUL KIANKHOOY 896
SMPTE Annual Elections 901
Highlights of the 131st SMPTE Technical Conference and Equipment Exhibit 902
Preview of the 22nd Annual Television Conference 906